

CLAIMS

1. A method for fabricating a semiconductor wafer, wherein the semiconductor wafer formed with circuits in its front surface is formed with a
5 film on its back surface, comprising at least:

an integration step of integrating a supporting substrate and the semiconductor wafer by supporting the front surface of the semiconductor wafer on a flat supporting face of the supporting substrate;

10 a thinning step of uniformly removing the back surface of the semiconductor wafer integrated with the supporting substrate by employing a thinning device for processing the semiconductor wafer to be thin, thereby to thin the semiconductor wafer; and

15 a film formation step of forming a film on the back surface of the semiconductor wafer integrated with the supporting substrate by employing a film-forming device.

2. A method for fabricating a semiconductor wafer according to claim 1, wherein:

20 the thinning device includes at least one chuck table for holding the semiconductor wafer thereon, and thinning means for acting on the semiconductor wafer held on the chuck table; and

25 said thinning step is carried out by holding the supporting substrate integrated with the semiconductor wafer on the chuck table, and causing the thinning means to act on the back surface of the semiconductor wafer.

3. A method for fabricating a semiconductor wafer according to claim 1, wherein:

30 the film forming device includes a holding portion for holding the semiconductor wafer thereon, and film forming means for forming the film on the back surface of the semiconductor wafer held on the holding portion; and

the film is formed on the back surface of the semiconductor wafer by the film forming means with the supporting substrate integrated with the thinned semiconductor wafer, held on the holding portion.

4. A method for fabricating a semiconductor wafer according to claim 2, wherein the thinning device is a polishing device including polishing means as the thinning means.

5 5. A method for fabricating a semiconductor wafer according to claim 3, wherein the film forming device is a reduced-pressure film forming device in which the film forming means forms the film in a reduced-pressure environment.

10 6. A method for fabricating a semiconductor wafer according to claim 1, wherein the supporting substrate is a glass substrate, and the semiconductor wafer is processed to a thickness of $100\ \mu\text{m}$ – $15\ \mu\text{m}$ at said thinning step.

15 7. A method for fabricating a semiconductor wafer according to claim 6, wherein the glass substrate has a thickness of 1 mm – 3 mm.

20 8. A method for fabricating a semiconductor wafer according to claim 1, wherein the semiconductor wafer is stuck to the supporting substrate through an adhesive containing a resin.